NEWSLETTER

ISOLA

EXTENDING THE PROJECT

In the concluding six months of its original timeline, the ISOLA project undertook critical onsite vessel surveys, laying the groundwork for an upcoming pilot program. These surveys were pivotal in tailoring the ISOLA system to the nuanced demands of real-world maritime operations, ensuring the technology's compatibility with actual vessel environments.

Despite the significant progress made, the complexity of integrating advanced security solutions into operational contexts led the project team to extend ISOLA Project until April 2024. This decision underscores the project's commitment to delivering a system that not only meets but exceeds the high standards set for maritime security technologies.

As the ISOLA project extends into this additional period, the focus intensifies on finalising system refinements and conducting comprehensive pilot tests. This extended timeline provides a valuable opportunity to further enhance the system's capabilities, ensuring that upon its completion, the ISOLA project will offer a robust and innovative solution to secure maritime operations against evolving threats.

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MARITIME CHALLENGES

Safety While Transporting Dangerous Goods

In June 2022, the maritime industry was reminded of its inherent risks when a chlorine gas leak at Aqaba port in Jordan tragically claimed 13 lives and left around 250 individuals injured. This incident underscores the constant hazards faced in maritime transport and highlights the urgent need for advancements in ship security measures to prevent such occurrences.

The introduction of the ISOLA system represents a pivotal advancement in maritime safety, particularly through its innovative chemical detection sensors and chemical dispersion modelling capabilities. These technologies offer a proactive approach to managing the risks associated with hazardous substances on board ships and in port areas.

ISOLA's chemical detection sensors are designed to swiftly identify the presence of toxic industrial chemicals (TICs) and other dangerous agents in the air, providing an early warning that can be crucial for preventing exposure and mitigating the impact of spills or leaks. In scenarios like the Aqaba port incident, these sensors could have played a key role in alerting personnel to the danger, potentially saving lives and preventing injuries.

Complementing the detection sensors, ISOLA's HAVAC model, a sophisticated chemical dispersion tool, offers invaluable insights into how toxic substances might spread through a ship's interior spaces or across port areas. By simulating the movement of hazardous agents, HAVAC can identify areas at high risk of contamination ("hotzones") and those that remain safe, enabling targeted and effective emergency responses.

The integration of ISOLA's chemical detection and dispersion modelling into maritime operations could dramatically transform the industry's approach to chemical hazards. For instance, in the wake of the Aqaba port tragedy, the deployment of ISOLA's technologies could provide immediate alerts upon the detection of hazardous substances. The HAVAC model would then offer real-time dispersion predictions, guiding emergency procedures to protect lives and assets effectively.

Adopting ISOLA's advanced technologies in maritime operations enhances not only the immediate response capabilities in emergencies but also contributes significantly to the long-term risk management strategies of shipping companies and port authorities. By improving resilience against chemical threats, the maritime industry can better protect its personnel, passengers, and the environment from the devastating impacts of such incidents.

The Aqaba port incident in June 2022 serves as a poignant reminder of the maritime industry's vulnerabilities and the critical importance of continuous innovation in security measures. ISOLA's chemical detection and dispersion modelling technologies represent essential tools in the ongoing effort to ensure the safety and security of maritime operations amid the complex and ever-evolving challenges they face.

ISOLA TOOL SPOTLIGHT:

On Ship Chemical Detection

T4i engineering specialises in addressing all challenges of air quality in inside and outside spaces. Whilst comfort zone in terms of appropriate temperature, humidity, CO2, O2, and dust is monitored in terms of chemical components by simple chemical sensors and particle analyzers, the other 2 zones of air quality (safety and security) require more sophisticated and complicated instrumentation which are the main design and development activities of T4i engineering. In these two zones, our company provides systems with extraordinary design, robust engineering, and technology made simple.

ISOLA is an EU project focusing on security and safety of passengers during a ship cruise and T4i engineering has developed 2 different systems; T4i ATMOS and T4i X-Machina that cover holistically T4i security in terms of specific target compounds and safety in terms of a broad range of VOCs found in the air that circulates through the ventilation system. More broadly, ISOLA enhances the use of the above

chemical detectors triggering alarms shared with the central security management station of the ship, whenever a potential threat is detected, whilst at the same time can have an overview of air quality inside the cruise ship. T4i ATMOS is used to holistically monitor air quality in the ship ventilation system and trigger alarms whenever a potentially chemical hazard is detected. With unattended monitoring, it provides alarms that are automatically generated and posted on the ISOLA message communication channel. T4i ATMOS has been developed as a device which can be mounted on a universal, globally adopted 19-inch rack frame, allowing simple installation on ships. Accompanied by its control software, chemicals identification is feasible based on retention time. T4i X-Machina has been designed and developed for use by security officers during passengers boarding especially at short stops during cruises. The device is a hand portable device easily operated to check passengers' luggage and bags for target Volatile Organic Compounds (VOCs) as markers of hazardous chemicals. Its special design includes the development of a handle, making it flexible to transport, and a probe with a conical end, allowing the user to sample directly from within the inspected luggage. T4i engineering provides T4i FemtoMachine, a miniaturised device that can calibrate qualitatively and quantitatively chemical detectors in the field anytime anywhere." as it has been used in the ISOLA project.